

## REMARKS

Claims 1-5 and 7-35 are pending.

New claims 36 - 42 are being added by the current amendment.

### Claims rejections under 35 USC §103

The claims are rejected under 35 USC §103 over Han (US 6485587) in view of Svenson (US4638065) / Godsey (US4298411). For the reasons cited below, the rejections are traversed.

Han describes a process for coating crystals for plastic-bound explosives. The reference describes bimodal RDX mixtures formed in a water slurry process. The reference does not, however, disclose the particle size distributions claimed in the current invention.

The examiner makes two contentions regarding Svenson:

1. That Svenson discloses bimodal HMX and RDX of size 10 and 70 microns (ex. 1, 3 and 4), and
2. That it would have been obvious for one skilled in the art to use the particle sizes taught by Svenson with bimodal RDX and HMX

It is respectfully believed that both of these assertions are incorrect.

In the first instance, the term "bimodal RDX" is a non sequitur. It is well known in the art that the term "bimodal" describes an explosive composition having two median particle sizes. The particles themselves are not "bimodal", but rather the composition is "bimodal" if it comprises two different particles sizes. As argued previously, Svenson does not disclose a bimodal explosive comprising different particle sizes of RDX or HMX. Svenson simply describes a method for precipitation recrystallization of HMX and RDX crystals having a single median median particle size. Svenson discloses the use of different solvents that result in different particle sizes, but each solvent simply produces a single particle size. Svenson does not disclose an explosive composition having a bimodal composition.

At column 1, line 30 et seq, Svenson discusses bimodal explosives in general, and explains that in theory there are two ways one could arrive at a bimodal composition, namely by either directly recrystallizing HMX with a specific particle size distribution, or in the alternative, by

recrystallizing individual sizes of HMX and mixing the particle sizes together. At line 36, Svenson states that to his knowledge, no one has been able to recrystallize HMX with a specific particle size distribution. More importantly, at line 42, Svenson states that his method does not do this either! Svenson states that his method simply permits the reproducible crystallization of select, *single*, sizes.

In the examples, Svenson discloses that some of the sizes he is able to produce fall within the ranges for the particle sizes for the currently claimed bimodal composition, namely 70 and 10 microns respectively. But crystals of these sizes are not new. Svenson thus adds nothing to the existing state of the art regarding the choice of *which* sizes to combine in a bimodal composition. Crystals having a particle size within the claimed ranges have been known in the art for years (though importantly never combined together in a bimodal explosive). Svenson does not teach which of the sizes he is able to produce *should be* used together in a bimodal explosive composition, simply that these are two (of the vast number of) sizes that can be produced individually using his method.

The examiner appears to acknowledge that Svenson itself does not suggest to use particle sizes of 10 and 70 microns together in a bimodal composition, because on page 2 of the Office Action the examiner simply asserts that it would have been obvious to use the particle sizes taught by Svenson since these are known particles sizes for use in bimodal compositions. This is respectfully believed not rise to the level of establishing a *prima facie* case of obviousness.

The sizes taught by Svenson are not new, and it is indeed known to use a variety of particle sizes in bimodal explosives. It is not enough, however, that the individual sizes are known for use separately in bimodal compositions. Rather it is the combination of these particular sizes that must be obvious. As stated in MPEP §2141.02 (I):

In determining the differences between the prior art and the claims, the question under 35 U.S.C. 103 is not whether the differences themselves would have been obvious, but whether the claimed invention as a whole would have been obvious. *Stratoflex, Inc. v. Aeroquip Corp.*, 713 F.2d 1530, 218 USPQ 871 (Fed. Cir. 1983); *Schenck v. Nortron Corp.*, 713 F.2d 782, 218 USPQ 698 (Fed. Cir. 1983)

Here it is respectfully believed that the examiner has failed to identify why the particularly claimed combination (invention as a whole) would be obvious.

The examiner appears to be arguing that that it would have been obvious for one skilled in the art to try and combine the already-known particle sizes disclosed in Svenson into a bimodal explosive composition simply because they are mentioned within a few paragraphs of each other in his recrystallization method patent. This argument does not satisfy the PTO's recent KSR guidelines, however. Guideline "E" therein explains that an "obvious to try" rejection requires choosing from a finite number of identified, *predictable* solutions, with a reasonable expectation of success. Here these criteria are not met. There are a vast, almost infinite number of possible particle size combinations for a bimodal explosive, none of which can reasonably be argued to have predictable results. The fact that both of the particles sizes from the claimed invention are coincidentally mentioned in Svenson (without any suggestion to combine them) does not make their combination a predictable result having a predictable property. The examiner asserts that it is obvious to vary the amounts and sizes of RDX and HMX "to achieve a desired result", but does not identify what the "desired result" that the skilled person would be attempting to achieve by choosing to combine the sizes from Svenson. While it may be obvious to "vary" the sizes, a *prima facie* case of obviousness requires some reason to select this particular size combination from among the vast, almost infinite number of choices.

New claims 36 - 42

New claims 36 – 42 add the feature of pressability above 98% TMD or 99% TMD, which as explained in the previously filed declaration, and explained in the specification, was believed in the art not to be possible. Support for the added features can be found in the examples and shown in the pressability curve of Fig 1. The added claims are believed novel, and it is believed that it would not have been obvious to one skilled in the art to arrive at the claimed combination. As discussed above, an "obvious to try" rejection under the post-KSR Guidelines requires that the selection be made among a finite number of choices having predictable results. Here the result is *per se* unpredictable since it was the belief in the art that the result (pressability >98% TMD at the claimed pressures) was not possible.

### Conclusion

For the reasons cited above, favourable reconsideration is solicited.